

Notice of Allowability

Application No.

10/682,589

Examiner

Richard Chan

Applicant(s)

ARAFA, MOHAMED

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/1/2006.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Allowable Subject Matter

Claims 1-30 are allowed.

The following is an examiner's statement of reasons for allowance:

With respect to claim 1, Denis discloses the antenna diversity receiver comprising: a first filter 31; a second filter 32; a low noise amplifier (LNA) 2; and an output switch 34 having a first switch position to couple an output of said first filter 31 to an input of said LNA and a second switch position to couple an output of said second filter 32 to said input of said LNA 2, and Denis reference continues to disclose the diversity receiver further comprising: an antenna terminal connected between antenna 1 and switch 33; and a selector switch 33 having a first switch position to couple said antenna terminal 1 to an input of said first filter 31 and a second switch position to couple said antenna terminal to an input of said second filter 32, however the prior art does not disclose wherein a second output switch having a first switch position to couple an output of said third filter to an input of said second LNA.

Claims 2-12 are dependent on allowable claim 1.

With respect to claim 13, Denis discloses a receiver comprising: a first antenna terminal 1; a first plurality of filters 31 and 32; a first selector switch 33 to controllably couple said first antenna terminal to an input of a selected one of the filters in said first plurality of filters; at least one first low noise amplifier 2 (LNA); at least one first output

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switch 34 to controllably couple an output of said selected one of said filters in said first plurality of filters to an input of a corresponding first LNA; however Denis does not disclose wherein a second antenna terminal; a second plurality of filters; a second selector switch to controllably couple said second antenna terminal to an input of a selected one of the filters in said second plurality of filters; at least one second LNA; and at least one second output switch to controllably couple an output of said selected one of said filters in said second plurality of filters to an input of a corresponding second LNA.

The Nadgauda reference discloses a diversity receiver in which there are two branches working in parallel with each other to receiver signals from transmitters.

It would have been obvious to one of ordinary skill in the art to implement the multiband receiver of Denis into the diversity receiver environment as disclosed by Nadgauda in order to obtain multiple channels of reception of the transmitted signals.

However the prior art does not disclose wherein said first and second pluralities of filters, said first and second selector switches, said at least one first output switch, and said at least one second output switch are located within a common module and wherein at least one LNA is located on a separate semiconductor module.

Claims 14-17 are dependent on claim 13.

With respect to claim 18, Denis discloses the module for use within an antenna diversity receiver system, comprising: a first antenna terminal; a first plurality of filters 31

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and 32, said first plurality of filters including at least a first filter 31 and a second filter 32; a first selector switch to controllably couple said first antenna terminal to an input of a selected one of the filters in said first plurality of filters; an output terminal for connection to an external low noise amplifier (LNA); and an output switch having a first switch position to couple an output of said first filter to said output terminal and a second switch position to couple an output of said second filter to said output terminal, however the prior art does not disclose wherein there is a third and fourth filter, and wherein a second output switch having a first switch position to couple an output of said third filter to said second output terminal and a second switch position to couple an output of said fourth filter to said second output terminal.

Claims 19-21 are dependent on allowable claim 19.

With respect to claim 22, Denis discloses a system comprising: a first antenna terminal 1 coupled to said first patch antenna1; a first plurality of filters 31 and 32; a first selector switch 33 to controllably couple said first antenna terminal 1 to an input of a selected one of the filters in said first plurality of filters; at least one first low noise amplifier (LNA) 2; at least one first output switch 34 to controllably couple an output of said selected one of said filters in said first plurality of filters to an input of a corresponding first LNA 2; however Denis does not disclose a second antenna terminal coupled to said second patch antenna; a second plurality of filters; a second selector switch to controllably couple said second antenna terminal to an input of a selected one

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of the filters in said second plurality of filters; at least one second LNA; and at least one second output switch to controllably couple an output of said selected one of said filters in said second plurality of filters to an input of a corresponding second LNA.

However the Nadgauda reference discloses a diversity receiver environment wherein there are two antennas 100 and 108 wherein each antenna has a branch receiver.

The Nadgauda reference discloses a diversity receiver in which there are two branches working in parallel with each other to receiver signals from transmitters.

It would have been obvious to one of ordinary skill in the art to implement the multiband receiver of Denis into the diversity receiver environment as disclosed by Nadgauda in order to obtain multiple channels of reception of the transmitted signals.

However the prior art does not disclose wherein at least one first LNA includes two or more LNAs and said at least two or more output switches.

Claims 23-25 are dependent on allowable claim 22.

With respect to claim 26, Nadgauda discloses the method for use in an antenna diversity receiver 100 however does not specifically disclose the specific operation wherein within a first frequency band is desired: coupling a first antenna to an input of a first filter; and coupling an output of said first filter to an input of a first low noise amplifier (LNA); and when operation within a second frequency band is desired:

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coupling said first antenna to an input of a second filter; and coupling an output of said second filter to said input of said first LNA.

The Denis reference however discloses the specific receiver structure wherein a first frequency band is desired: coupling a first antenna 1 to an input of a first filter 31; and coupling an output of said first filter 31 to an input of a first low noise amplifier 2 (LNA); and when operation within a second frequency band is desired: coupling said first antenna 1 to an input of a second filter 32; and coupling an output of said second filter 32 to said input of said first LNA 2.

It would have been obvious to implement the receiver as disclosed by Denis as the branch receiver of Nadgauda in order to implement a multiband receiver in a diversity receiver system.

However the prior art does not disclose wherein a third frequency band is operated , and coupling said first antenna to an input of a third filter associated with said first antenna.

Claims 27-30 are dependent on allowable claim 26.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

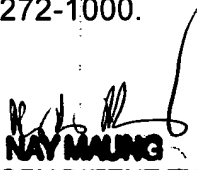
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chan whose telephone number is (571) 272-0570. The examiner can normally be reached on Mon - Fri (9AM - 5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571)272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Richard Chan
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07/06/06


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SUPERVISORY PATENT EXAMINER